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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/817,195

04/02/2004

Maria Clemens Y. Quinones

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07/11/2006

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EXAMINER

LEE, PATRICK J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N . 10/817,195	Applicant(s) QUINONES ET AL.	
	Examiner Patrick J. Lee	Art Unit 2878	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-8,20-24 and 26 is/are allowed.
- 6) ☒ Claim(s) 9,11-19,25,28 and 29 is/are rejected.
- 7) ☒ Claim(s) 10 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06162006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to amendment filed June 16, 2006.

Information Disclosure Statement

2. The information disclosure statement filed 6/16/2006 fails to comply with 37 CFR 1.97(c) because it lacks a statement as specified in 37 CFR 1.97(e). It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 9, 11-19, 25, & 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,794,431 to Park.

With respect to claim 9, Park discloses a method of forming an optocoupler package comprising the steps of: forming a substrate with lead pattern (14) of lead frame (10) as a lead frame and transparent material (42) as a molding compound; attaching light emitting device (20) as an optical emitter and photoactivated devices (16, 18) as an optical receiver to substrate; and depositing transparent material (40) between optical emitter (20) and optical receivers (16, 18). While Park does not explicitly disclose the configuration to be flipped over and mounted to a circuit board, such would have been obvious to one of ordinary skill in the art because such would lead to an intended use of the device and enable the device to electrically couple to power sources and appropriate signal processing systems.

With respect to claim 11, the modified Park discloses the lead patterns (14) to be formed before combination with the molding (42).

With respect to claim 12, the modified Park discloses the use of copper for lead frame (10) (see column 3, lines 20-24).

With respect to claim 13, the modified Park discloses the bonding of optical emitter (20) to lead pattern (14) with wire (22), while optical receivers (16, 18) are bonded with wires (24, 26, 28) to the lead pattern (14).

With respect to claim 14, the modified Park discloses the deposition of opaque material (44) on top of transmissive material (40) (see column 5, lines 10-14).

With respect to claim 15, the modified Park does not explicitly disclose the attachment of at least four optical emitters and receivers on the substrate, but such would have been obvious to one of ordinary skill in the art because such would constitute an obvious duplication of parts.

With respect to claim 16, Park discloses an optocoupler package comprising: leadframe (10) as a substrate; light emitting device (20) as an optical emitter; photoactivated devices (16, 18) as at least two optical receivers; and transparent material (40) as optically transmissive media between adjacent optical emitters and receivers. While Park does not explicitly disclose a second optical emitter, such would have been obvious to one of ordinary skill in the art because such would constitute an obvious duplication of parts that would enhance the ability of the detection capabilities of sensors (16, 18). While Park does not explicitly disclose the use of a light reflective material, such would have been obvious to one of ordinary skill in the art because such would enhance the reflectivity that Park is trying to obtain through the use of a concave configuration of the transparent material (40) (see column 4, lines 67-68; column 5, lines 1-10).

With respect to claim 17, the modified Park discloses the lead frame (10) to have etched portions to form lead pattern (14).

With respect to claim 18, the modified Park discloses the use of copper (see column 3, lines 20-24) and a molding compound in the form of transparent material (42).

With respect to claim 19, the modified Park discloses the use of semiconductor devices (16, 18) as a chip including a MOSFET on the substrate.

With respect to claim 25, Park discloses an optocoupler package comprising: lead frame (10) as a substrate with both etched and non-etched regions with transparent material (42) serving as a molding compound covering both etched regions and exposes the non-etched regions; light emitting device (20) as an optical emitter mounted on the non-etched regions of lead frame (10); photoactivated devices (16, 18) as at least two optical receivers mounted on the non-etched regions of lead frame (10); and transparent material (40) as optically transmissive media between adjacent optical emitters and receivers. While Park does not explicitly disclose the configuration to be flipped over and mounted to a circuit board, such would have been obvious to one of ordinary skill in the art because such would lead to an intended use of the device and enable the device to electrically couple to power sources and appropriate signal processing systems.

With respect to claim 28, the use of a plurality of solder balls is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art in order to appropriately couple the optocoupler device to the printed circuit board.

With respect to claim 29, while the modified Park does not explicitly disclose the configuration to be flipped over and mounted to a circuit board, such would have been obvious to one of ordinary skill in the art because such would lead to an intended use of the device and enable the device to electrically couple to power sources and appropriate signal processing systems.

Allowable Subject Matter

6. Claims 1, 4-8, 20-24, & 26 are allowable over the prior art.

7. Claims 10 & 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 1 & 10, the prior art of record does not disclose nor suggest that the conductive structures have heights greater than heights of the optical receiver and optical emitter. As a result, claim 1 and dependent claims 4-8, 20, & 26 are allowable, while claim 10 and dependent claim 27 are objected.

With respect to claims 21, the prior art of record does not disclose nor suggest the substrate having half-etched regions. As a result, claim 21 and dependent claims 22-24 are allowable over the prior art.

Conclusion

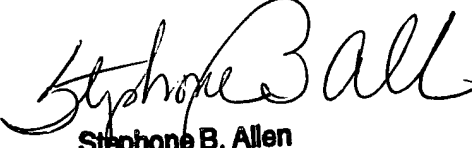
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick J. Lee
Examiner
Art Unit 2878

PJL
July 6, 2006



Stephone B. Allen
Primary Examiner